(10)

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/017,788	12/13/2001	Quan Nguyen	002558-064310US	6103

20350 7590 08/25/2004

TOWNSEND AND TOWNSEND AND CREW, LLP
TWO EMBARCADERO CENTER
EIGHTH FLOOR
SAN FRANCISCO, CA 94111-3834

EXAMINER	
COUNTS, GARY W	

ART UNIT	PAPER NUMBER
1641	

DATE MAILED: 08/25/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/017,788	NGUYEN ET AL.	
	Examiner	Art Unit	
	Gary W. Counts	1641	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 June 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-48* is/are pending in the application.

4a) Of the above claim(s) *32-48* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-31* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *02/24/03*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Applicant's election with traverse of Group I claims 1-31 in the reply filed on June 21, 2004 is acknowledged. The traversal is on the ground(s) that the claims of Group I and Group III are indicated as being only in one subclass of the USPTO classification system and that the Group III claims are directed to a process for preparing a significant component of the Group I claimed kits.. This is not found persuasive because of reasons of record and further because although Examiner has listed only one class and subclass for classification of Groups I and III, this is only one example for each Group and other classes and subclasses would also be searched. Further, although the searches may be expected to overlap, there is no reason to expect the searches to be coextensive. Further, as set forth in the previous office action Group I includes and requires elements which are not required in Group III. Therefore, Groups I and III requires different search terms and different search strategies, which creates a burden on the examiner.

The requirement is still deemed proper and is therefore made FINAL.

Information Disclosure Statement

2. The information disclosure statement filed February 24, 2003 fails to comply with the provisions of 37 CFR 1.97, 1.98 and MPEP § 609 because on page 1 under the section Foreign Patent Documents, Applicant's listing of references under Cite No. AU, AV, AW and AX fails to cite the Foreign Patent document number, therefore the reference cannot be determined and the relevance of the reference cannot be

determined. It has been placed in the application file, but the information referred to therein has not been considered as to the merits. Applicant is advised that the date of any re-submission of any item of information contained in this information disclosure statement or the submission of any missing element(s) will be the date of submission for purposes of determining compliance with the requirements based on the time of filing the statement, including all certification requirements for statements under 37 CFR 1.97(e). See MPEP § 609 ¶ C(1).

Claim Objections

3. Claim 3 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 1-18 and 25 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 is vague and indefinite because it is unclear if the standard diluent comprises two or more different target analytes or not. Claim 1 first recites " a biological fluid normally including two or more different target analytes but substantially free of the

two or more different target analytes". It is unclear what applicant intends. See also deficiencies found in claim 18.

Claim 25 is vague and indefinite because it is unclear how to detect an undetectable endogenous level of two or more different target proteins. There would be no way of ensuring if the two or more target analytes are present or not because there is no way of detecting an undetectable target. It is unclear what applicant intends. Please clarify.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1, 3, 5-8, 11, 12 and 15-17 are rejected under 35 U.S.C. 102(b) as being anticipated by Tamarkin et al (US 5,587,294).

Tamarkin et al disclose a kit comprising a standard diluent and standards (control) to serve as assay standard (col 13). Tamarkin et al disclose that the diluent can be a serum solution from which endogenous IL-1 and IL2 (target analytes) have been removed. Tamarkin et al disclose known amounts of cytokines are added to the diluent to generate standard curves (col 17, lines 10-44). Tamarkin et al disclose that the kit can contain instructions (col 13, lines 13-16). Tamarkin et al also disclose that the kit comprises a solid phase carrier (support) (col 13). Tamarkin et al disclose that the carrier has immobilized antibodies to capture the target analyte (col 10, lines 44-63)

(col 14, lines 21-25). Tamarkin et al also disclose that the solid support can be a bead (microparticles) (col 10, line 64 – col 11, line 6). Tamarkin et al disclose the kit can comprise labeled antibodies for the target analyte (col 14).

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

9. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

10. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

11. Claims 2 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tamarkin et al (US 5,587,294) in view of Van Emon et al (Bioseparation and bioanalytical techniques in environmental monitoring, Journal of chromatography B, 715 (1998) 211-228).

See above for teachings of Tamarkin et al.

Tamarkin et al differ from the instant invention in failing to specifically teach the use of affinity chromatography to remove the two or more different target analytes.

Van Emon et al disclose the use of affinity chromatography to absorb the analyte to be isolated from the sample. Van Emon et al disclose that the analyte is absorbed by its binding partner such as an antibody (p. 213, Bioseparation techniques). Van Emon et al disclose that this provides for methods of successful separation of an analyte of interest from a complex matrix (p. 212).

It would have been obvious to one of ordinary skill in the art to incorporate affinity chromatography such as taught by Van Emon et al for the pre-absorption technique of Tamarkin et al because Tamarkin et al specifically teaches that the target analytes are removed from the serum by absorption of the target analyte by its respective antibody and Van Emon et al teaches that affinity chromatography provides for methods of successful separation of an analyte of interest from a complex matrix. Therefore, a skilled artisan can have a reasonable expectation of success in incorporating affinity chromatography such as taught by Van Emon et al for the pre-absorption technique of Tamarkin et al.

12. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tamarkin et al in view of Brailly et al (total Interleukin-6 in Plasma Measured by Immunoassay, Clin. Chem 40/1, 116-123 (1994).

See above for teachings of Tamarkin et al.

Tamarkin et al differ from the instant invention in failing to specifically teach the target analytes are two or more of IL-2, IL-4, IL-6, IL-8, IL-10, GM-CSF, TNF-a and IFN-y.1.

Brailly et al disclose reagents and immunoassays for IL-6. Brailly shows these reagents are specific for IL-6.

It would have been obvious to one of ordinary skill in the art to substitute the reagents of Brailly et al for the IL-1 reagents of Tamarkin et al because although Tamarkin fails to specifically teach the diluent has had IL-6 removed, Tamarkin et al specifically teaches that their kits and methods can be used to in measuring interleukin-6 (col 7, lines 20-25) (claims 4 and 10) (col 14, lines 33-37). Thus, one skilled in the art would use and package the appropriate reagents for the analyte of interest, in this case interleukin-6.

13. Claims 10, 18 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tamarkin et al (US 5,587,294) in view of Posner et al (US 4,994,375).

See above for teachings of Tamarkin et al.

Tamarkin et al differ from the instant invention in failing to teach the two or more different target analytes are mixed together to form a single concentrated material.

Posner et al disclose combining different analytes to prepare controls or calibrants (col 2, lines 45-49) (col 3, lines 15-55). Posner et al disclose that the analyte are mixed and lyophilized and stored for later use (col 3, lines 15-68). Posner et al teaches that this control or calibrant is reconstituted by diluent (col 4).

It would have been obvious to one of ordinary skill in the art to combine the target analytes as taught by Tamarkin et al to form a single concentrated material because Posner et al teaches the combination of different analytes to prepare controls or calibrants which are lyophilized and stored for later use. Further, one of ordinary skill would recognize that the combination of analytes to form a single concentrated material provides for a single control that can replace two or more separate control products.

14. Claims 13, 14, 20-23, 25-28, 30 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tamarkin et al (US 5,587,294) in view of Chandler et al (US 6,268,222).

See above for teachings of Tamarkin et al.

Tamarkin et al differ from the instant invention in failing to teach the solid supports are classifiable into subgroups, each subgroup differentiable from others by a differentiation parameter and each subgroup having immobilized thereon a capture reagent capable of bind to a different target analyte.

Chandler et al disclose different populations of microspheres which are classifiable into subgroups. Chandler disclose that the microspheres carry on its surface one or more populations of fluorescently stained nanospheres and that by varying the quantity and ratio of different populations of nanospheres it is possible to

establish and distinguish a larger number of discreet populations of carrier particles with unique emission spectra (col 3, lines 1-8). Chandler et al disclose that the unique emission can be fluorescence (col 12). Chandler et al discloses that each subgroup of the microspheres can be coupled to a different complementary binding moiety (capture reagent) for the analytes of interest (col 15). Chandler et al teaches that these microparticles can be packaged into kits for diagnostic, analytic and industrial applications known in the art (col 4, lines 31-38). Chandler et al teaches that these microspheres provide for a powerful analytical tool, which provides for qualitative and quantitative assay results (col 12, lines 40-42) and provides multiplex analysis of a plurality of analytes in sample (abstract).

It would have been obvious to one of ordinary skill in the art to incorporate microspheres as taught by Chandler et al into the kit of Tamarkin et al because Tamarkin et al specifically teaches that the solid support can be beads (microspheres) and Chandler et al shows that such microspheres provide for a powerful analytical tool which provides for qualitative and quantitative assay results and provides multiplex analysis of a plurality of analytes in sample.

15. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tamarkin et al and Posner et al in view of Van Emon et al (Bioseparation and bioanalytical techniques in environmental monitoring, Journal of chromatography B, 715 (1998) 211-228).

See above for teachings of Tamarkin et al and Posner et al.

Tamarkin et al and Posner et al differ from the instant invention in failing to specifically teach the use of affinity chromatography to remove the two or more different target analytes.

Van Emon et al disclose the use of affinity chromatography to absorb the analyte to be isolated from the sample. Van Emon et al disclose that the analyte is absorbed by its binding partner such as an antibody (p. 213, Bioseparation techniques). Van Emon et al disclose that this provides for methods of successful separation of an analyte of interest from a complex matrix (p. 212).

It would have been obvious to one of ordinary skill in the art to incorporate affinity chromatography such as taught by Van Emon et al for pre-absorption technique of Tamarkin et al because Tamarkin et al specifically teaches that the target analytes are removed from the serum by absorption of the target analyte by its respective antibody and Van Emon et al teaches that affinity chromatography provides for methods of successful separation of an analyte of interest from a complex matrix. Therefore, a skilled artisan can have a reasonable expectation of success in incorporating affinity chromatography such as taught by Van Emon et al for the pre-absorption technique of

16. Claim 29 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tamarkin et al and Posner et al in view of Brailly et al (total Interleukin-6 in Plasma Measured by Immunoassay, Clin. Chem 40/1, 116-123 (1994).

See above for teachings of Tamarkin et al and Posner et al.

Tamarkin et al and Posner et al differ from the instant invention in failing to specifically teach the target analytes are two or more of IL-2, IL-4, IL-6, IL-8, IL-10, GM-CSF, TNF-a and IFN-y.1.

Brailly et al disclose reagents and immunoassays for IL-6. Brailly shows these reagents are specific for IL-6.

It would have been obvious to one of ordinary skill in the art to substitute the reagents of Brailly et al for the IL-1 reagents of Tamarkin et al because although Tamarkin fails to specifically teach the diluent has had IL-6 removed, Tamarkin et al specifically teaches that their kits and methods can be used to in measuring interleukin-6 (col 7, lines 20-25) (claims 4 and 10) (col 14, lines 33-37). Thus, one skilled in the art would use and package the appropriate reagents for the analyte of interest, in this case interleukin-6.

Conclusion

17. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Williams et al (US 6,767,708) teach the remove of target analytes from normal human serum (col 3, line 66 – column 4, line 2). Williams et al teaches adding known amounts of anlayte to the human stripped serum (Examples 5 & 6).

Barrera et al (Removal of Interleukin-IB and tumor Necrosis Factor from human Plasma by in Vitro Dialysis with Polyacrylonitrile Membranes, Lymphokine and Cytokine Research, Vol 11, No. 2, 1992). Barrera et al teach the depletion of cytokines from plasma to be used as diluent in cytokine radioimmunoassays (p. 99).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gary W. Counts whose telephone number is (571) 2720817. The examiner can normally be reached on M-F 8:00 - 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Long Le can be reached on (571) 272-0823. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Gary Counts

Gary Counts
Examiner
Art Unit 1641
August 12, 2004

BAO-THUY L. NGUYEN
PRIMARY EXAMINER
8/20/04